# CFA Newsletter

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# 1,000,000,000,000 more trees

## Why we all need to get behind the Trillion Trees Vision

*A tree-planter in the Congo turning the Trillion Trees Vision into a reality (Photo: Lucie Escouflaire WCS Congo).*

A tree stands near the edge of a Colombian rainforest. Not too much to look at: quite small, a few delicate branches catching dappled light, a simple spray of leaves – some with brown crispy edges nibbled by insects, one upper leaf splattered with bird droppings, and a thin irregular bend in its bark happens to shelter the chrysalis of a common species of butterfly. But this tree is one of the first of its kind – not because of how it looks, but because of what is happening in the world around it.

Imagine this tree a human generation from now. It's 2050, the tree perhaps has birds nesting in it, a few scars, perhaps has its seeds harvested, but it stands in a world with a different atmosphere; a world that has one trillion more trees in it than it would have had if 2018's trends had continued.

Today, to imagine this tree evokes a gut feeling of vulnerability, because of what we know about our society. We've learned about edge-effects; seen how forest clearance is often followed by unsustainable agricultural practices, leading to soil depletion, driving further forest loss in a catastrophic spiral; witnessed difficulties with economies, greed and failed pledges. But the people of 2050 see the tree differently, because they live in a world without deforestation, where forest cover continues to grow, not shrink, where their gut reaction is to imagine this one tree as safe. Perhaps you've dismissed this possibility before; but is it such an unrealistic vision for our modern society? Whether this vision becomes a reality or not all comes down to a gap.

We know how bad deforestation rates are, and how important reversing this

trend is as a solution to many of the planet's major problems. This is not news. Deforestation and forest restoration is, rightly, firmly on the global political agenda, rooted in initiatives like the New York Declaration on Forests, the Sustainable Development Goals, the Bonn Challenge and the Paris Agreement. There has been a wave of corporate and governmental commitments to end deforestation, and there's more public and private finance available than ever before, but something isn't working.

In short, commitments aren't becoming canopies; finance isn't turning into forest. Positive forest investments are still heavily outweighed by negative ones. The goals and the finance currently on the table are not having the impact they should, and companies are struggling to deliver on their pledges. Funders are not finding the right investments, and frontline programmes are finding it difficult to secure funding. We call this the 'implementation gap'.

Trillion Trees was founded to bridge this implementation gap once and for all. Launched in November 2016 with seed funding from Restore UK*, Trillion Trees leverages decades of experience of three of the world's largest conservation organisations: WWF, BirdLife International and WCS (Wildlife Conservation Society). These three 'great oaks' of conservation have presence in over 120 countries and are already leading successful forest protection and restoration, but our shared Trillion Trees commitment gives us a platform to be more persuasive and powerful than we could individually.

How does it work? Through tailored support from our dedicated Trillion Trees team, we connect funders with the ventures capable of turning the world's unfulfilled forest pledges into reality, and we help project teams on the ground think bigger and find the resources and audiences they need to scale up.

"Although forest restoration plans and strategies to avoid deforestation exist around the world, on-the-ground implementation and financing of these commitments lag well behind these ambitions," says William Baldwin-Cantello, Chief Adviser on Forests for WWF-UK, WWF-UK. "Trillion Trees will help achieve global forest commitments by bringing together a diverse group of corporate, non-profit, and community stakeholders to deliver targeted conservation projects and unlock access to private-public funding."

**The Trillion Trees Vision**

*"One trillion trees have been re-grown, saved from loss, and better protected around the world by 2050, thanks to determined and collective action by all sectors of society."* It's a big goal, but achievable. It's by no means exclusive; the key part is the latter: *determined and collective action by all*. It's not possible to do this by ourselves. We must work with others, and recognise the good work already underway by many. Together we need to inspire the world to change: initiating new projects, supporting existing ones and bringing the right funding to the right action. We will share our learning and produce new research to help solve implementation challenges. This is what is necessary to reach that 2050 world that our Colombian tree thrives in.

**Why a trillion?**

1,000,000,000,000 trees: one thousand forests containing a billion trees, or even one billion woodlands with one thousand trees, or, according to Hans ter Steege *et al*., just over two-and-a-half times the number of trees in lowland Amazon. The Trillion Trees Vision has a nice ring to it, but it wasn't chosen for alliteration. It is an accurate estimate of the scale of change that is required to keep the planet stable, according to the best current science. Research has shown that there were once six trillion trees on our planet; now there are three trillion left (Crowther *et al*. 2015), and we're still losing ten billion trees per year. Human activity was the main driving force for this decrease and humans can, and must, be the main driving force to increase it again.

For a technical breakdown of how many trees of this trillion can be achieved through better protection (about half), avoided loss (170 billion), and re-growth (360 billion) contribute to the trillion, please see this document. "The trillion is the result of doing what we must to stop climate change", says Tim Rayden, Sustainable Landscapes Unit, WCS. "This means maximising the land sector's contribution to the Paris Agreement, by arresting forest loss, and restoring sufficient land to meet the Bonn Challenge commitments."

"It's about the right trees in the right places," says Patricia Zurita, CEO of BirdLife International. "With responsible land-use comprising almost 25% of the global climate solution, aligning our forest work through Trillion Trees is our contribution to one of the largest societal priorities of the 21st century." With better agricultural practices backed by corporate and public policy changes, large areas of land can be left as, or restored to, forests. Many forests have been degraded and have space for more trees to regrow. Abandoned, degraded lands exist where natural forests can return. Well-managed plantations or woodlots can provide sustainable fuel, food and, fibre. And while our vision is certainly very ambitious, we hope it will inspire influential individuals and institutions to aim higher than they might otherwise have done.

**On the forest floor**

To see a world where forests grow, rather than shrink, in practice Trillion Trees focuses on combining key landscape approaches: better protection, natural regeneration and targeted planting. Trillion Trees already has pilot Landscape Initiatives underway, many employing techniques at the forefront of sustainable forest landscape innovation.

Gola Rainforest Cocoa in Sierra Leone [featured in the previous CFA Newsletter] is a fantastic example of innovation in the commodity sector with cocoa that is truly deforestation-free and ending community exploitation, combining forest protection finance (through REDD+) with restoration and agroforestry to keep forests standing whilst improving local development. Around protected areas in Cambodia, rice farmers are adopting high wildlife-friendly standards and deforestation-free commitments to access a premium market through an enterprise called Ibis Rice. Between the Trillion Trees partners, we have over 20 scalable Landscape Initiatives in the pipeline.

To maximise our impact, we have also identified cross-cutting, sector-specific and national-scale policy initiatives to drive the underlying change we need to bridge the implementation gap. The beauty of Trillion Trees is that by working together we are developing more comprehensive strategies, learning from each other, and connecting forward-thinking funders and new financing mechanisms to impactful forest work.

**Colombia**

As we zoom from the global Trillion Trees Vision back to our single tree in the rainforest, we can now see why this tree is one of the first of its kind. It stands near the edge of Colombia's Serranía de Chiribiquete National Park, an area that world

headlines proclaimed has just been expanded by 4.3 million hectares, making it the world's largest tropical rainforest national park, as well as the newest UNESCO World Heritage Site. "This is a very important milestone for the Amazon and for forest conservation globally. This is also a defining moment for the protection of key ecosystems in Colombia," says Mary Lou Higgins, Director, WWF-Colombia.

The work that led to this success was supported for several years by Trillion Trees partner WWF, and the Trillion Trees team have been negotiating and influencing this process. *Herencia Colombia* (or, Heritage Colombia) is an initiative led by the National Parks of Colombia, with support from WWF, WCS, the Gordon & Betty Moore Foundation, the Protected Areas & Biodiversity Fund, Conservation International and initial funding from the German government (BMZ). It's a fantastic current example of what the future of forest protection will look like: it combines protected areas and surrounding 'production mosaics' in a grand vision with a focus on long term finance. It's a perfect example of government and NGO cooperation, government commitment being fulfilled, and the 'implementation gap' bridged. It represents the very essence of the Trillion Trees Vision, implemented, for the world to see.

Right now, we have the opportunity to create an alternative future for the world's forests. Think big, stretch your ambition and work with us.

**For more information, please visit our website, www.trilliontrees.org.**
**Contact: jgeheran@wcs.org**

*Restore UK is now named Restore Our Planet

TRILLION TREES | WCS | WWF | BirdLife INTERNATIONAL

# Association news

## Young Forester Award winners announced

After receiving applications from throughout the Commonwealth we are pleased to introduce the two winners of the CFA Young Forester Award 2018 to be hosted by the University of British Columbia between September and December.


My name is **Thawanda Masiye**. I am a female Zambian aged twenty-eight, a tutor and lab demonstrator at the University of Zambia where I graduated with a degree in Ecology and Wildlife Management in 2014. I am passionate about nature, conservation of biodiversity, management of natural resources and environment protection.

I feel humbled and most privileged to be one of the two recipients of the 2018 Young Forester Award. Simply put, it is a dream come true. Conservation is perceived by many as a profession most suitable for men, as such, being a young woman pursuing a career in conservation, I have faced challenges in securing employment in my field. In spite of this, I decided not to give up and opted to work as a volunteer. I intend to succeed and thrive in my career as an Ecologist and hopefully be an example to women that it is possible to have a successful career in conservation.

I am so excited and looking forward to my internship at the University of British Columbia at their Malcom Knapp Research Forest. It is a great opportunity for me to put my knowledge and skills into practice as well as gain experience that will empower me to effectively contribute to conservation.

Hello there, my name is **Gerald Osuka**. I was born in 1992 in Kenya and I am currently pursuing my Master's degree in Natural Resource Management from Egerton University.

I am a keen wildlife ecology enthusiast with broad research interests in community structure and dynamics, animal-plant interactions, and conservation biology at large. Some of the work I have done centered on the ecology of big mammals including the endangered Rothschild giraffe and Spotted Hyena.

The CFA YFA 2018 is my heavenly sent opportunity that will not only foster professional development but also expand my exposure, experience and network.

# Forest Scenes

## Valuing trees in the urban environment

It is a salutary thought that many of the most significant trees in our towns and cities were planted more than a century ago. We live in times of economic constraint when investment in trees is difficult to justify on aesthetic grounds alone even though the list of benefits that trees provide is well documented, and these benefits are magnified when they are placed in the urban environment.

Trees absorb carbon dioxide, one of the principle green-house gases, they provide shelter and shade, and it has been estimated that they can save up to 10% of the energy needed to heat or cool nearby buildings. In addition, trees slow down the rate at which rainwater hits the ground which helps to reduce the likelihood of flash flooding. They filter out atmospheric pollutants, and shade us from harmful solar radiation. Trees can have a positive effect on the incidence of asthma, skin cancer and many stress related ailments, reducing bed occupancy time of recuperating patients in hospitals.

Property owners share a common interest in the value of their assets. Trees, it has been estimated, can increase property values by as much as 18%, with houses and homes in tree lined avenues much desired and sought after. Trees also mask the intrusive nature of many developments where space is at a premium.

With the emphasis today on land reclamation and brown field site development, trees can help bind soil together and prevent erosion. Some trees can also assist in the cleaning up of contaminated land. Trees can also help in the binding and stabilisation of embankments and are used widely in the creation of woodlands on landfill and other reclamation sites such as old, disused quarries.

Many of the everyday products we buy from supermarkets and garden centres originate from trees. Trees yield fruit. Trees provide horticultural mulch. Trees yield timber. Renewable fossil fuel, high value chemicals and pharmaceuticals may be the wood products of the future.

Ecosystems and ecological niches have become buzz words of our times. Trees provide valuable environmental habitats for a myriad of creatures both large and small. In short, trees bring the countryside to the town.

Passive leisure time is probably the largest of the leisure industries. Trees enhance the character of local areas. Trees soften the landscape of hard edged towns, making them greener and more attractive. Many government advisory notes emphasise the importance of sustainable communities. Trees contribute to the landscape where people meet. Community involvement in woodland creation and maintenance is on the increase with people increasingly aware and involved in their local environment.

With so many benefits it is surprising that the message doesn't always get through to budget holders, and finances can be a problem when it comes to investing in trees, particularly in the urban environment where conditions are hostile and difficult. Perhaps it is the fact that the predominant argument for trees is still made in terms of aesthetics.

This is where the work of Treeconomics begins, quantifying the benefits of trees and the value of tree populations in monetary terms and building the case that trees are assets which have a value which accrues over time.

Treeconomics is a UK company which provides a range of services related to valuing trees in the urban forest. Their services encompass the valuation of tree populations in monetary terms, assessing the composition of the urban forest, quantifying the ecosystem services trees provide for the community, advising on tree selection, the preparation of urban forest management plans and a myriad of other associated services, but why is their work so important and relevant?

In 2012 a ground-breaking report in the UK was published by Torbay Council following a study using i-tree Eco. The report, for the first time in the UK, expressed the benefits of the urban forest in economic terms as well as providing a comprehensive analysis of Torbay's urban forest. It began with an introduction by Sir Harry Studholme, Chair of the GB Forestry Commission, and presented the information that at that time Torbay's urban forest was made up of some 818,000 trees which would cost £280 million to replace. The carbon stored in the trees was reported to be worth £5.1 million.

It was estimated that every year additional carbon is stored, and pollutants are filtered, a combined service worth £1.5 million every year. Torbay's urban forest stores around 98,000 tonnes of carbon per year and sequesters around 3320 tonnes of carbon each year. Carbon storage is valued at £5.1 million annually and the sequestered carbon at £172,640 annually.

Since the publication of the Torbay report several similar projects have been completed, in London, Edinburgh, Glasgow, Wexham, Oldham and Southampton. Modifications to the i-tree system have meant that detailed information of the same quality can now be achieved by converting existing tree inventories into studies. This is a desk-top exercise and is therefore relatively inexpensive to achieve. It is open not only to public authorities but any landowner who has a tree population which has been inventoried. The information provides not only an accurate picture of the value of and ecosystem services provided by the current tree population but provides a sound and accurate basis for the productions of detailed and specific management plans.


*Tree tag was used by NHS clinical commissioning group as part of an offsite carbon offset scheme but with local landmark trees planted to signpost the fact that they (NHS CCG) were taking account of the environment.*

The urban forest is dynamic and ever changing. If the benefits it now provides are to be managed sustainably and enhanced into the future, then understanding what is there now and the value of the benefits it provides is essential.

For further detail of i-Tree studies in the UK please contact **Kenton Rogers at kenton@treeconomics.co.uk**

# Consolidating and seeking new directions for forest genetics and germplasm research and its use in Africa

From the neat rows of exotic plantation forests of Eastern and Southern Africa, to the lush green regenerating tropical forests and plantations of West and Central Africa and through agro-forests and tree woodlots around many homesteads and in many landscapes in Africa, tree genetic resources and germplasm have been the cornerstone for support to human, survival on the continent. In recognition of this critical role, Africa has made significant efforts to apply forest genetics and tree improvement research to increase tree productivity at various scales. This is evidenced by the number of trials of commercially important species initiated some 100 years ago, and more recently the introduction of multipurpose tree species and the domestication of important indigenous species. Tree improvement and deployment of germplasm of high genetic and physiological quality have unquestionably made significant contribution to plantation forestry productivity through-out Africa for many years. These efforts have created over 16 million ha of plantation forests on the continent which are projected to increase by 0.2 million ha per year (FRA, 2015). The planted trees compliment the natural forests through the supply of wood, fiber, gum, fuelwood and for provision of goods and services for domestic consumption, and the surplus products are traded regionally and globally.

But times have changed. Recent reviews commissioned by the African Forest Forum (AFF)[1] on tree improvement and tree germplasm in Western, Central, Eastern and Southern Africa showed a decline in investment in tree breeding research and large deficits in supply of high quality tree germplasm Africa (Marunda *et al*., 2017). Many countries in Africa have not been investing in tree breeding resulting in shortages of tree seeds of high genetic quality. A number of countries established National Tree Seed Centres in partnerships with international organizations but some of the centres have been unsustainable or neglected after external funding ended. The decline in funding research and development has resulted in abandonment of trials and seed storage infrastructure, as well as lack of skilled personnel; raising concerns that Africa might not be able to meet its future tree planting requirements to meet growing demand of wood and fiber as economies grow.

The AFF review also showed that most countries are using ordinary-run-of-the mill seed to meet planting targets and forest companies establishing large scale plantations in green-fields are importing un-tested seed and other planting materials (seedlings and vegetative materials) from source countries (e.g. pines from the Americas and eucalypts from Australia). Seeds of multipurpose tree species are still largely sourced through international organizations such as the World Agroforestry Centre and NGO projects. Supply and demand chains for such species is yet to mature and genetic quality of the germplasm is still to be tested and documented (Nyoka *et al*., 2011). The perception that donors will finance agroforestry projects and create the demand and supply of seed still runs deep in the community forestry sector in Africa.

Historically, government forest departments have played a leading and central role in tree improvement and germplasm production. In many countries in Africa, the most enduring narrative is that that tree breeding and germplasm supply was narrowly targeted towards a few species with well articulated end-products of increased timber and fiber yields. There was good strategic planning in terms of choice of species to introduce, good documentation and archiving of records of germplasm imported or exported, coordination of research activities in partnership with academic and international institutions. With the adoption of economic reforms that resulted into the devolution of these activities from central government to private institutions and other government agencies, most forestry departments are no longer playing a central role in tree improvement activities. This was compounded by the existence of many uncoordinated actors who constituted the African private sector in forestry, and in most countries could not come together as an entity that one could dialogue with or could articulate agendas in various fora. This has led to a narrow focus of the private sector in forestry, specifically targeting private companies that then expended efforts on specific species and end products (e.g. breeding for fiber gain in South Africa) and not addressing the broader interests of the very many small-scale tree growers (e.g. provision of non-timber forest products), and not working collaboratively to address the potential application of tree improvement for other end-uses such a raising trees for mitigating climate change effects.

Besides the economic imperatives, the dual threats of climate change and forest pests and diseases are already changing the structure and function of the African forests. For example, the blue gum chalcid (*Leptocybe invasa*) and red gum lerp pysllid (*Glycapsis brimblecombei*) are causing significant damage to eucalypt trees and plantations throughout the continent (Gichora *et al*., 2012). Climate change may cause shifts in vegetation types with subtropical dry forests and subtropical moist forests becoming tropical very dry forests, tropical dry forests and tropical moist forests (Munishi *et al*., 2010). Africa is witnessing a reconfiguring of the commercial and non-commercial values that are derived from forests and so forest genetic resources and germplasm improvement and management has to reflect these changes.

All this is happening in the background of ambitious tree planting programs across the continent. The African Forest Landscape Restoration Initiative (AFR100) is a country-led effort to restore 100 million hectares of deforested and degraded landscapes across Africa by 2030. Many African countries have committed to plant and restore millions of ha under the Bonn Challenge. The Great Green Wall of the Sahara and the Sahel is creating a mosaic of green and productive landscapes across North Africa, the Sahel and the Horn of Africa, and some SADC countries have adopted this approach as well. Large scale afforestation activities are happening in countries such as Mozambique and Tanzania with a potential to plant over 9 million ha of green fields under pine, acacia and eucalyptus species. Other countries such as Uganda (Saw-log Production Grant Scheme), South Africa (Temporarily un-Planted areas) and Zimbabwe (reforestation after the land reform programme) are ramping up tree planting after changes in forest policies that affected afforestation and reforestation rates over the past decades.

To plant or not to plant is a key decision that the forestry sector in Africa is grappling with. Farmer assisted natural regeneration of forests and woodlands has shown significant potential (e.g in dry woodlands of Niger and Miombo woodlands of East and Southern Africa). However, natural forests will not be a sustainable source of wood into the future as more of these are going under protected forest reserve systems. Planted forests will increasingly become the major source of timber and products as human population in Africa increases and economies grow. The increase in economic development, urbanization and a shift towards renewable resources can propel the development of forest plantations and woodlots; including farm forestry. This would require the use of high quality tree germplasm to maximize productivity on limited forest land base.

As part of the recommendations, the review by AFF proposed increasing skills and capacity in tree germplasm management. To this end, the AFF held two regional training workshops on tree improvement and tree germplasm management in Nairobi, Kenya and Niamey, Niger in November 2017 and February 2018 respectively bringing together over 50 experts from Africa. Outcomes from the workshops included recommendations for regional and species-based approach to supporting tree breeding and seed supply through applied tree improvement, proficient tree germplasm management and exchange, application of forest genetics in forest ecosystem management

[1] The African Forest Forum (AFF) is an association of individuals with a commitment to the sustainable management, wise use and conservation of Africa's forest and tree resources for the socio-economic well-being of its peoples and for the stability and improvement of its environment. It is based in Nairobi, Kenya.

to better understand the functioning of forests at a landscape level. A species and regional-based approach will help to maximize the benefits of limited funding and better coordination of research efforts. The AFF review and training workshops also advocated for the formation of a network of tree-germplasm experts in Africa to promote research, germplasm exchange, promote education in forestry, tree breeding and improvement, tree germplasm management, build capacity and leverage expertise across the continent to promote the use of high quality tree germplasm. Conventional breeding, along with newly developing applications of bio-technologies and genetic resources derived there from (e.g. vegetative propagation of eucalypt clones, domestication of indigenous fruit trees), will almost certainly continue to be used effectively and to a great advantage. For other species and natural forests, there is need to increase resilience through fostering natural selection, understanding natural variations, and adopting management practices that preserve the genetic variability of the species. Citizen science using mobile technology by farmers on the ground can be a feasible and cost effective approach to monitoring the flowering and seeding patterns of natural species.

Tree improvement and germplasm deployment are indispensable components of sustainable forest management, are a core part of long-term strategy to enhance tree productivity, manage forest health, and mitigate the effects of climate change. Forest research and development in Africa deserves renewed support from governments, private sectors and the international community. The African Forest Forum is making headway in raising awareness amongst policy makers and forest practitioners on the importance of using germplasm of high genetic and physiological quality if Africa is going to meet its tree planting targets.

**Crispen Marunda**
*Coordinator, Forest Resources Inventory*
*Sustainable Timber Tasmania*

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# Transitioning British Columbia to Climate Based Seed Transfer

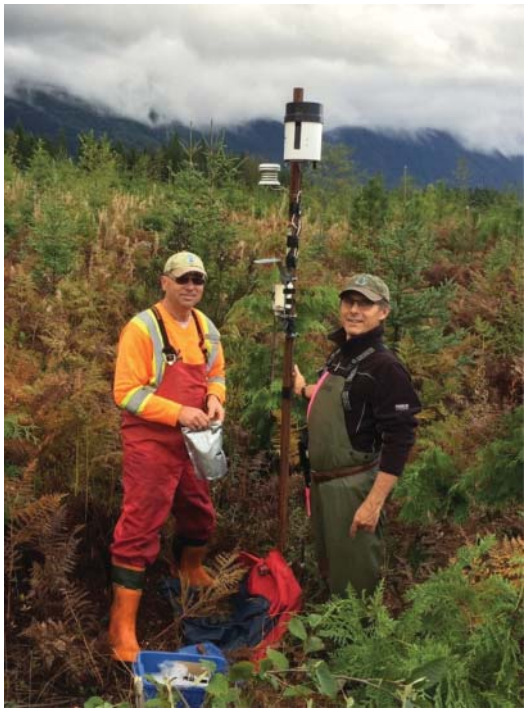
**Introduction**

Based on the knowledge that trees are genetically best adapted to the climate in which they evolved, seed transfer limits and seed zones have long been a fundamental component of reforestation. With BC warming at approximately 1.5°C between 1900 and 2013[1], tree populations have been unable to migrate or adapt fast enough to maintain their optimal climate niches.

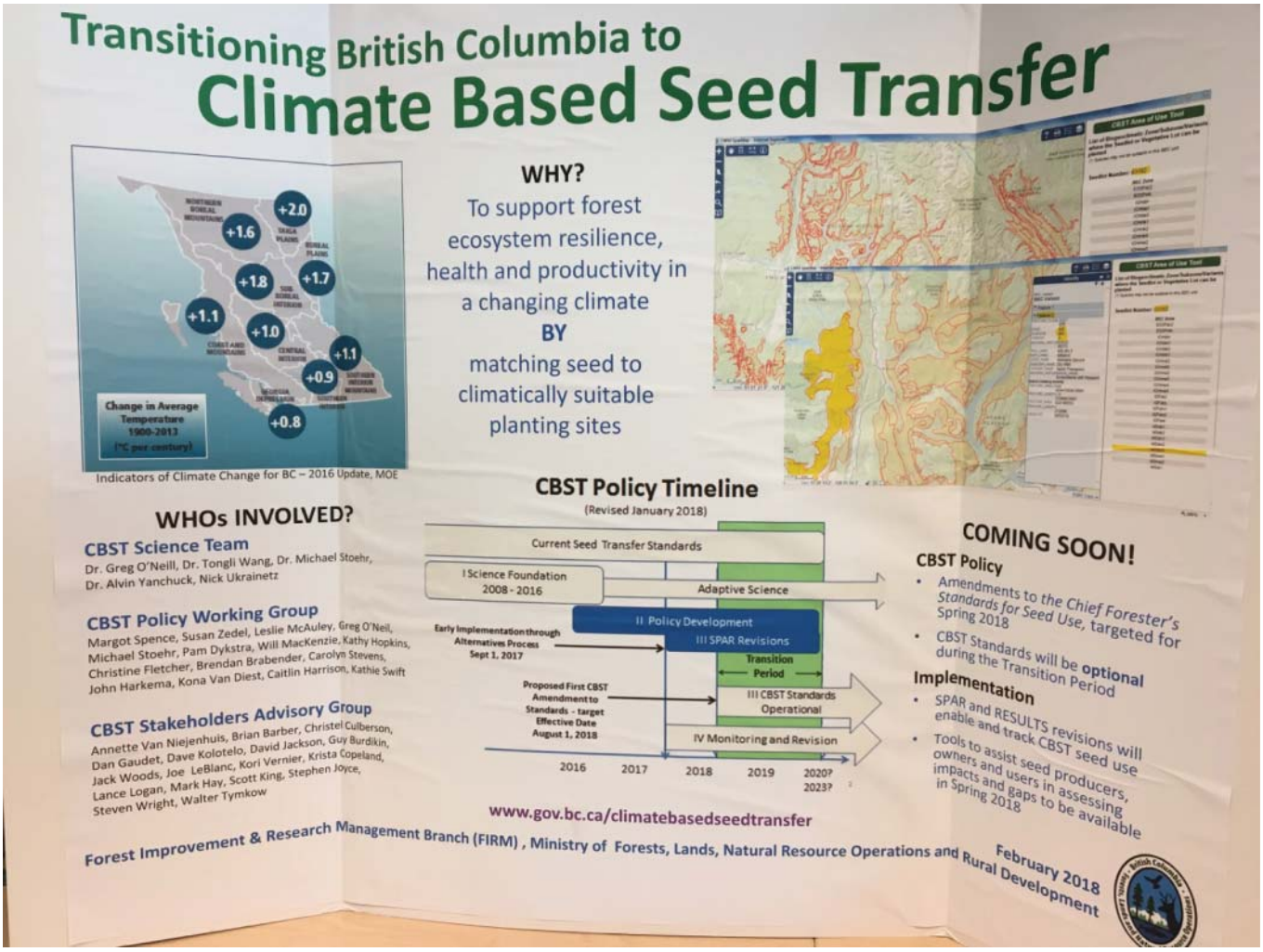
In pursuit of adapting to and mitigating the impacts of climate change while achieving the goals of forest ecosystem resilience, health and productivity, the Forest Improvement and Research Management Branch (FIRM), has been working towards a climate based seed transfer (CBST) system for over a decade. The CBST system improves the match between seed and plantation climates by switching from a system based on geography to one based on climate and assisted migration. The approach, developed by Dr. Greg O'Neill, et al., was published in 2017[2].

**Overview**

The new CBST system matches the historic (1945) climate of the seed source ecosystem with the near-future (2033) climate of the planting site ecosystem, accounting for recent past and near-future climate change. This approach is built on BC's well-developed "Biogeoclimatic Ecosystem Classification" (BEC) system which identifies 208 ecosystems, each with a relatively uniform climate.



*Dr. Greg O'Neill (right) and Keith Bird, Forest Improvement and Research Management Branch, checking a climate station at one of 48 Assisted Migration Adaptation Trial sites (Photo credit: Dr. Marie Vance).*




*CBST Extension Poster.*

*BC's seed orchards (Interior Douglas-fir orchard, Vernon BC shown), are expected to undergo realignment for CBST over the next decade. (Photo credit: Penny May).*

*Margot Spence, Registered Professional Forester, is the Tree Seed Policy Officer at the Forest Improvement and Research Management Branch, Office of the Chief Forester, BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development.*

BC's approach to assisted migration in CBST is conservative. Most of the migration distance (a multivariate measure comprised of latitude and 8 climate variables) accounts for past climate change (1945–2016), or "adaptation lag"; future climate change is projected for only 20 years, representing a quarter of a rotation in most areas. This balances adaptation for ongoing climate change without compromising plantation establishment. Another way to look at this is that we are currently planting into sites that are approximately 1.2°C mean annual temperature (MAT) warmer than the seed's historic origin. With CBST, we will be planting into sites that are approximately 0.4°C MAT colder than the seed's historic origin – in anticipation of ongoing climate change. Combined with provenance data, this approach to migrating seed sources, determines the ecosystems suitable for planting each seed source.

**Species Selection and Seed Selection**

Under BC's *Forest and Range Practices Act*, the tree species selected to reforest each cutblock are specified in a Forest Stewardship Plan (FSP) and a seedlot is subsequently selected according to the *Chief Forester's Standards for Seed Use*. Given this approach, assisted migration under CBST will not move seed outside of its current species range, until policy is also developed to apply assisted migration to tree species selection in an FSP.

Ministry Research Ecologists are currently developing an approach to climate change informed species selection (CCISS) with the model and decision aids currently undergoing refinement and review.

Collaboration efforts between the CBST project and the CCISS project will continue to ensure integration and consistency between decision tools and policy realms.

**CBST Policy Development and Implementation**

As part of CBST policy development, FIRM worked with GIS consultants to develop a "CBST tool" to demonstrate shifts to areas of use for seed of each species in each BEC variant.

The parameters and science behind the CBST tool were recently incorporated into the Ministry's Seed Planning and Registry System (SPAR), to align with amendments to the *Chief Foresters Standards for Seed Use*. The amended Standards enable optional use of CBST transfer limits starting with the 2019 seedling request season (August, 2018). Initially, seed users will be able to use the current (geographically based) transfer standards, the CBST standards, or a mix of both. The option to use the current transfer standards will be discontinued at the end of a "transition period", anticipated to be 2–3 years, depending on results from a stakeholder impact assessment and gap analysis currently underway.

To ensure that CBST policy is adaptive and reflects realized changes in climate, monitoring, continuous improvement and periodic updates of foundational data sets and climate modelling are planned. Ongoing scientific research is also needed to evaluate and model climate change impacts at more refined scales, and understand local pest interactions. More information on BC's approach to CBST is available at www.gov.bc.ca/climatebasedseedtransfer.

**SUMMARY**

**Climate Base Seed Transfer and Risk**

- The BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development considers that doing nothing about climate change is high risk.
- CBST is a climate change adaptation strategy intended to reduce the risk associated with climate change impacts.
- CBST takes a conservative approach – focusing on catching up with climate change that has already occurred, rather than projecting too far into the future; this is intended to balance establishment risk with the risk of maladaptation and loss of productivity.

BC's network of forest genetic provenance trials and an Assisted Migration Adaption Trial[3] (established 2009 to 2012), are allowing scientists to use space in place of time to measure impacts of potential seed movements and advance CBST policy.

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3. For more info on the Assisted Migration Adaptation Trial: https://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/tree-seed/forest-genetics/seed-transfer-climate-change/assisted-migration-adaptation-trial

# The Edinburgh Centre for Sustainable Forests and Landscapes: an optimistic future

*The ECSFL aims to address how multiple landscape functions and values can be generated for the benefit of different stakeholders. Here, in Glen Carron, Scotland, forests plantations provide timber, but there is also space for biodiversity in mixed native woodland, riparian habitats for fish, and pastures for livestock. Taken together these habitats provide a variety of goods and services for a range of local and national stakeholders.*

We are at an exciting intersection of trajectories and opportunities in relation to forests and landscapes. The longstanding problems of deforestation, land degradation, and climate change that we continue to face are tempered by many local, national, and global initiatives to restore forests, reduce greenhouse gas emissions, conserve biodiversity, and improve governance. Even so, while many policy and planning processes are taking account of forest and landscape values, mechanisms for realising the benefits and values of forests in tangible ways have still to be fully operationalised. Forests contribute to the nutritional well-being of over 850 million people, yet the narrow imperatives of increasing crop yields drives policies that focus on food security, rather than the need to sustain the environment upon which productivity and nutritional diversity depends. In an era of rapid urban growth, green infrastructure can cool cities and reduce pollution, while urban woodlands provide space for recreation that improves mental and physical health. The growth of circular bio-economies, of which forests are an important component, is stimulating innovative thinking around enabling policies to foster scaled-up investments. We are at the cusp of global transformations, but challenges remain, and these invite innovative solutions.

It is in this context that, in September 2018, the University of Edinburgh launches the Edinburgh Centre for Sustainable Forests and Landscapes (ECSFL). With a focus on forested landscapes, the Centre will draw on university expertise in development studies, political sciences, ecosystems ecology, earth observation and GIS, carbon and climate science, simulation modelling, and ecosystem services, among other disciplines, to generate the critical interdisciplinary knowledge to deliver sustainable landscapes within the frame of the UN Sustainable Development Goals. A systems approach, combining expertise from social and natural sciences, applied in partnership with public and private sector organisations, and national and international Non-Government Organisations, will guide policy makers, empower stakeholders, and energise businesses to respond to the coupled needs of environmental sustainability and human wellbeing.

Transformative change towards social justice and environmental sustainability is underpinned by changing societal norms.

This is achieved as much through social engagement as by political discourse. The Centre will foster discussions and debates on biodiversity, land use, climate, the bio-economy, and the cultural and social values we attach to trees and woodlands in the landscapes within which we live. Education, training, outreach, and capacity development are essential components of this strategy. The university's unique access to new technologies provides unprecedented capacities for transformative change, to monitor and verify such change, and to democratise decision-making. Advances in remote sensing technologies, for example, coupled with increasing data accessibility and analytical capacities, allow land cover changes to be tracked on an almost daily basis. Such timely and transparent information empowers civil society, including local communities, to challenge unsustainable land uses, and to chart more equitable development pathways. By providing platforms for dialogue across different interest groups and government actors, the Centre will position itself as an honest broker of science-based evidence, and a facilitator of more favourable negotiated scenarios.

We are indeed at the threshold of exciting transformative changes, yet there is still much uncertainty about the pathways to be taken, and implications for environment and society. Together with its partners, the ECSFL is grappling with the global challenges of land degradation, climate change, food security, poverty elimination and human wellbeing, and biodiversity conservation. We are optimistic about the future.

Further information about the Edinburgh Centre for Sustainable Forests and Landscapes can be obtained from Jaboury Ghazoul, jaboury.ghazoul@ed.ac.uk.

**Jaboury Ghazoul**

# In Mexico, payments for ecosystem services benefit forests and communities

Water. Clean air. Biodiversity. Nutrient-rich soil. These are all forest ecosystem services that have value for the economy, society and wellbeing, but because we tend to take them for granted, forests are often exploited unsustainably for short-term gain.

One way around this market failure is to enact regulations protecting forests. Another approach is to reward those living near forests for managing natural resources in a sustainable way. This is the principle at the heart of Payment for Ecosystem Services (PES) programs.

But despite a growing number of PES schemes around the world, there is little statistically rigorous evidence about the effectiveness or consequences of the PES approach. A new impact evaluation of Mexico's national PES program – one of the oldest and largest incentive-based conservation initiatives in the world – is helping to fill that knowledge gap.

In 2003, Mexico's National Forestry Commission (CONAFOR) launched the Payment for Hydrological Services Program (or PSA, for its Spanish acronym). The PSA provides communities with economic incentives to conserve and manage forests. Deforestation and forest degradation are critical challenges in Mexico, which lost nearly 8 percent of its forest cover between 1990 and 2010 – a significant cost given that millions of people depend on forests for their livelihoods.

Although the PSA has undergone numerous evaluations since it started, it has also evolved significantly over the years. Recently – with funding from the Mexican Government and the i2i Program supported by the United Kingdom, as well as a grant from the Program on Forests (PROFOR) and technical expertise from the World Bank and economists Jennifer Alix-Garcia at Oregon State University and Katharine Sims at Amherst College – CONAFOR conducted an impact evaluation to find out how more recent cohorts of households and communities were responding to the financial incentives.

The findings are striking. The PSA grants to communities are modest – on average roughly USD $24 per hectare of land enrolled, with a cap of 3,000 hectares – yet researchers found that participants took on significantly more forest management activities compared to the control group. For instance, participating communities were more active in patrolling against deforestation, building fire breaks, and fighting soil erosion. And despite being restricted in how they can use forested lands, PSA participants do not appear to be economically worse off.

In fact, PSA communities appear to gain in many aspects, notably community social capital. This is a particularly important result for a PES scheme, as Jennifer Alix-Garcia, a lead researcher for the study and professor of applied economics at Oregon State University, explained:

"Ever since PES programs have started, there have been concerns about undermining the social norms of collective action, deterring people from voluntarily conserving ecosystems, and causing tensions by distributing payments. But when we look at different measures of social capital, they either stay the same or increase. There's 20–25 percent more investment in infrastructure that benefits everyone, like a community meeting house or a village vehicle. We also see marginally positive effects on peoples' willingness to lend to other one, so there's trust within the community."

Not only do the results validate the importance of the PSA, but they will directly influence how the next iteration of the program is carried out. Notably, the data on forest cover change showed that the PSA had the greatest impacts where the risk of deforestation was high. This points to the need for additional targeting of participants, so that areas with a high risk of deforestation are prioritized over areas where forests are likely to remain intact without any intervention.

The study's findings will also influence Mexico's broader forest policies, confirmed officials with CONAFOR's departments for General Planning and Information Coordination, and Planning and Evaluation. "They demonstrate that the program contributes to strengthening communities' social capital, which is very important for their empowerment, allowing them to identify and manage their own sustainable development processes," said Jorge D. Fernández Medina, Guillermo Muñoz Galindo, and Sofía Romo Monroy in written comments. "The results will contribute to planning instruments for the years 2019–2024, such as the National Development Plan and the National Forestry Program (PRONAFOR)."

This research may also generate greater interest in impact evaluations related to environmental management efforts. "Mexico's PES program is the first to be evaluated with a regression discontinuity design," said Victor Hugo Orozco Olvera, study co-principal investigator (PI) and economist with the World Bank's Development Impact Evaluation Unit (DIME). "This methodology comes close to a randomized control trial, which is currently the most statistically precise way of determining whether the outcomes we see are truly caused by a given intervention. So far, it's been challenging to carry out impact evaluations on land conservation policies, so this study really breaks new ground."

The one question that the researchers were not able to answer is whether the PSA reduced rates of deforestation in the long run, particularly after the five-year contracts with communities came to an end. "There is a gap between what we can learn from current remote-sensing data designed for large scales, and what we would like to know about what is happening at the parcel level," said PIs Alix-Garcia and Sims. "If we're really worried about tropical forests, then investing in deforestation monitoring systems could really improve the efficacy of PES programs."

**From: profor.info**

# A report from the Global Timber Tracking Network's (GTTN) Regional Workshop in Africa

To increase awareness amongst African stakeholders from the field of research, government and non-governmental institutions, development partners, and the private sector about the Global Timber Tracking Network (GTTN), and the growing potential of timber tracking techniques to help curb illegal logging in Africa, GTTN organized its Regional Workshop Africa in Younde, Cameroon on 27–28 June 2018.

Aim of the workshop – which was planned in collaboration with Bioversity International – was not only to increase awareness of stakeholders in Africa about GTTN but also to identify interest and potential demand or prospective barriers for adoption of timber tracking techniques on the continent. In collaboration with African stakeholders, GTTN wanted to explore the needs for knowledge transfer and financial assistance for developing skills, knowledge and tools and with the aim to

adopt timber tracking technologies including the collection of sample material and the development of reference data. Africa is hardly presented on GTTN's map of service providers. Since GTTN is currently finalizing a Service Providers Directory, the workshop also served to map existing capacities and know-how with laboratories already involved with timber tracking as well as with laboratories that currently apply their competencies to other areas (e.g. agriculture, CITES species other than wood etc.). Further important topics were handling and sharing of intellectual property rights (IPR) as well as issues relating to Access and Benefits Sharing (ABS). Finally, the workshop aimed at identifying interest for the development of strategic partnerships (with private sector, key institutions and decision makers) within African countries in the application of the timber tracking technologies and thereby exploring avenues for collaboration and up-scaling the GTTN initiative between demand and supply side countries for effective wood traceability systems.

Hauke Brankamp from the German Embassy in Cameroon opened the meeting by stressing the importance of an active network in the timber producing countries. His call was enthusiastically answered by the ca. 25 participants coming from across the continent, and bringing experiences from within research institutes, local authorities, policy, NGO's, as well as private companies.

After an introduction to GTTN's concept and activities (Jo Van Brusselen, GTTN Project Coordinator), and some insights to the role African stakeholders play within the network (Gesche Schifferdecker, GTTN Communications Manager), Marius Ekué (Bioversity representative in Cameroon and GTTN Steering Committee member) discussed local capacities and made quite clear that an investment in capacity building and technology transfer (especially to the Congo Basin countries) are needed. An adoption of timber tracking technologies requires the development of skills, knowledge and tools, but also the possibility to apply the tools directly in the producing countries.

**Introducing timber identification methods**

Following Marius' engaging speech, four different methods of wood identification were presented. Harisoa Ravaomanalina (Scientific Authority of CITES Madagascar) introduced wood anatomy as an identification tool for the most commercialized Malagasy woody species. She also elaborated on the challenges of data collection, because the *Dalbergia* species she is working on are threatened to become extinct and samples are rare. Harisoa's presentation was followed by an introduction to wood DNA analysis by Marius Ekué, who addressed the advantages of this method when it comes to the identification species and the geographic origin, but also stressed the importance of a collection of sample material and the development of a reference database. Micha Horacek (Francisco Josephinum Secondary College and Research Institute in Austria) shared insights of his work with stable isotopes. He explained that when a tree grows and takes up water, nutrients and carbon dioxide, these stable isotope ratios are passed on to the wood, imprinting it with a geographical marker that can be used to identify the wood's origin. However, isotope ratio analysis cannot be used for species identification. Finally, Cady Lancaster (US Forest Service & National Fish and Wildlife Forensic Lab) shared her video contribution to discuss the advantages and limitations of DART TOF Mass Spectrometry, which analyses the chemical composition of wood for species identification.

**Demands and barriers for timber tracking in Africa**

The third session was dedicated to identifying interests, demands and barriers for timber tracking in Africa. The first speaker, Richard Gyimah (Ghana Forestry Commission) elaborated on the potential of wood identification techniques application in Ghana. Richard stated that as a VPA country, Ghana has a timber legality assurance system (TLAS) – and even if the innovative tools are not used yet, he supported their future application and stressed the need to take the respective policy makers on board. Concentrating on the scientific capacities in West Africa, Emmanuel Opuni-Frimpong from the University of Energy and Natural Resources in Ghana shared his experiences with the development of a centre of competence for wood identification in Ghana. His presentation was followed by that of Eric Essomba (Environmental Investigation Agency) exploring the potential of wood identification techniques in EIA investigations in the Congo Basin. EIA is currently building capacity of local civil society organisation to collect Okoume's samples in the region. Germain Yene Yene (Gersyn Services) discussed about his challenges of organizing various sampling campaigns mostly in Central Africa.

Even though all speakers work in different environments and countries, they all stressed the importance of increasing regional discussion and cooperation also with local governments to strengthen regional capacities and cooperation amongst African countries to detect and prevent illegal timber trade in the region.

**Frameworks for cooperation in Africa**

The final session of the day had a very practical approach aiming at the development of frameworks for cooperation in and with Africa. The session started with a presentation of Yves Nkoum Messoua from the National Support Agency for Forest Development (ANAFOR) in Cameroon. Ives shared ANAFORS's experience with CITES, wood identification and the protection of African forests with a specific focus on the genetic traceability of Assamela (*Pericopsis elata*) in Cameroon. Illegal logging and habitat loss pose a realistic threat to Assamela, which is among the most valued tropical hardwood timber species. Following decades of extraction in the 20th and 21st century, the species is listed on CITES Appendix II. Since it is not only found in Cameroon but also in neighbouring countries like Republic of the Congo, DRC, Ghana and Nigeria, collaboration is crucial. Ives' presentation was spontaneously followed by the one of David Odee (Kenya Forest Research Institute – KEFRI) who offered insights to East African cooperation initiatives and international projects on tropical tree species that KEFRI have conducted. The last presentation of the day was held by Pacyinz Lyfoung (Public Interest Intellectual Property Advisors/PIIPA). She addressed the issue of handling and sharing of intellectual property rights, concerning technology, methodology and reference data. Thereby she also introduced questions relating to Access and Benefits Sharing (with reference to the Nagoya Protocol).

The presentations were followed by a panel discussion with several speakers of the day and active engagement of the workshops' participants. After a follow-up on Pacyinz's speech and controversial debates between scientists and policy makers (who had different approaches to the topics), the group discussed whether African timber producers focus more on working on timber species used in the domestic, intra-African or on international markets. Interestingly, contributions suggested that all are important, depending both on wood species and producer countries. The panelists also identified key stakeholders in the region to further promote and develop the GTTN network and potential focal points. Finally, the participants decided to continue the exchanges during the World Café planned on the following day.

**World Café and excursion**

The morning of the second day aimed at discussing four different questions in four consecutive and rotating sessions. The table facilitated by Marius Ekué targeted at developing strategic partnerships (with the private sector, key institutions and decision makers) within African countries in the application of the timber tracking technologies. Nele Schmitz (Thünen Institute) identified what capacities for wood identification tools are currently present in Africa (direct or hidden, i.e. methods not used on wood yet) and what capacities still need to be developed. Pacyinz Lyfoung proceeded the engaging discussion of the former day and worked with her group on solutions for local protection in the framework of global cooperation with a specific focus on IPR and ABS. The fourth table was moderated by Jo Van Brusselen who further developed GTTN's approach of timber species prioritization for reference data development.

The meeting was closed by a visit to the local sawmill Dino & Fils SA, thoroughly guided by the managers Daniel Abomo and Njidam Moussa. From logging to various processing phases, the company provides clients domestically and globally with logs and intermediate to final products. It was demonstrated that the company takes high regard of production and environmental standards. During the visit the participants of the Regional Workshop learned of Dino & Fils' processes and chain-of custody and how they operate vis-a-vis due diligence requirements of domestic and international markets.

**From: globaltimbertrackingnetwork.org**

# Publications

## Landing Together

**Film series by *Dr. Purabi Bose, Filmmaker, Deputy Chair of CEESP Theme on Governance, Equity and Rights***

It is rare that the voices of the voiceless get any recognition. Landing Together's new four short indie documentary films capture the stories of real life protagonists – tribal, Indigenous Peoples and pastoralist communities – stories about their forests and traditional land.

Each film of about 20 minutes covers issues related to oil palm plantation, mining, gender, and community forest management. The uniqueness of the films lies in diversity – linguistic, ethnicity, landscapes and culture – of India's some 104 million tribal population.

Landing Together Films completed a collection of four short independent documentary films and one feature length documentary film in July of 2018 that

focuses on the issues of land and forest rights of Indigenous Peoples in India.

What makes these films unique is the way the stories are given a voice by the real life protagonists. The films are the first of their kind in the country because they are multilingual and cover the entire 'tribal-belt' of mainland and Northeast India.

The tribal belt of India – from Gujarat to Odisha and the entire Northeast India – is rich in mineral resources and diverse landscapes such as grasslands in semi-arid western India to tropical biodiversity rich northeast forest in the mountains. Diversity is also found in the spoken 12 languages, mix of ethnicities and religous groups, but one aspect that connects India's ~ 400 diverse adivasis and pastoralists communities is their 'way of living' with nature. The Landing Together films is first of its kind to document real life protagonists in their own languages from diverse landscapes.

Each of the four short documentary films highlight issues related to extractive resource practices (such as bauxite and coal mining), plantations that replace traditional indigenous techniques of farming due to demand for palm oil, gender disparity in land tenure and forest rights, and how collective forest governance is preferred by tribal communities.

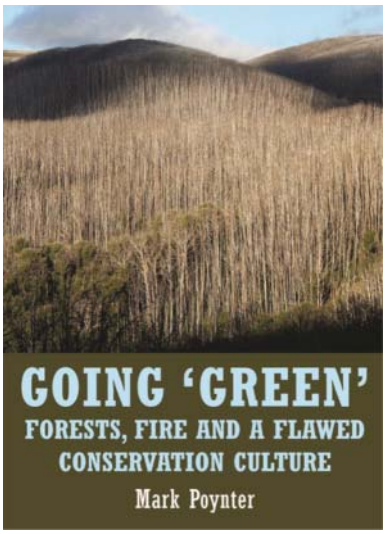
For the director and producer, Purabi Bose, the Landing Together films is like 'pass the story' giving voices to the voiceless from all over tribal India.

*Please find further details about the process and filmmaking approach at the website* ***www.landingtogether.weebly.com***

# Going Green. Forests, Fire and A Flawed Conservation Culture

**By Mark Poynter**

**Connor Court**




Review: Having a strong culture of caring for the environment is a byword for healthy society. However, it can go too far, and in highly urbanised Australia where most live remote from nature, decades of alarmist environmental campaigning has fostered a misguided conservation culture that lacks perspective, is intolerant of human resource use, and sees environmental protection in overly simplistic terms.

According to this culture, forests are only ever protected when contained in large national parks or other forms of landscape reservation which are popularly presented as a vacant idyll that will magically restore itself to a natural, pre-European state. Unfortunately, this misconception ignores: 1) the extent to which forests have already been changed by unnatural fire regimes and the introduction of an array of feral and noxious pests; 2) the role played by active human intervention in managing these problems; and 3) the extent to which this management is associated with renewable resource use that generates wealth, requires access, and employs workforces.

After several decades of aquiescence to this misguided conservation culture, Australia, which has been a world leader in integrating sensitive, renewable forest use and active management with high standards of environmental care, is progressively losing these skills.

This book examines our conservation culture and how it has attained a political-correctness which has permeated the most influential areas of society with damaging consequences, not least for the environment itself.

**Philip Hopkin**

# Around the World

## Colombia: Can bird watching help save Colombia's forests?

Until recently, the Farallones National Park was a key hideout for Colombia's FARC rebels. But as the guns fall silent and Colombia transitions out of five decades of armed conflict, this mountainous cloud forest is receiving another kind of visitor.

One crisp morning, a dozen tourists from China visit a small farm on the edge of the park that has set up feeding stations for hummingbirds. They fire away at the miniscule creatures with their telescopic lenses, hoping to get the perfect picture. Suddenly, the bird watchers hear the loud cry of the Toucan Barbet – a red-chested species found only in Colombia and Ecuador – and point their lenses toward the sky.

"Colombia is a really special country," says Kungliang Wu, a biologist from Southern China on a two-week bird-watching

tour of the country. “It’s a tropical place, but you have [forests at] many different altitudes. So there are a lot of different species.”

Colombia has more bird species than any other country in the world. According to Bird Life International, around 20 percent of all the world’s species can be found here.

But until recently, many areas of countryside were controlled by gangs or rebel groups, making it impossible for tourists or researchers to access much of the birdlife.

Now, as security improves, the Colombian government and local conservationists hope that bird watching can create thousands of jobs.

Government officials and local tour companies say this type of tourism could help preserve the forests by giving villagers in rural areas a new source of income, and an incentive to not clear forest to make way for cattle or agriculture.

Deforestation increased 43 percent in Colombia in 2016, and the government is struggling to contain it, particularly in far-flung areas where there is little law enforcement.”Bird watchers spend up to $400 [€343] a day to go on tours,” Christofer Calonje, owner of a bird-watching company in the city of Cali, told DW. “This trickles down and benefits many people, from the hotels, to the guides to the villagers who cook for tourists.”

Throughout the 1990s and in the early 2000s the park was sheltered FARC troops, which benefited from its strategic location between the Pacific Ocean and the nearby city of Cali. The guerillas held hostages in the park, and in 2000 attacked a nearby hydroelectric plant. Now, a few dozen bird watchers come on daytrips from Cali each day, to a road that borders the park. It’s not a huge number of people, but locals have already seen some benefits.

Dora Londono, a farmer who has lived near the national park for the last 30 years, has set up an observation deck for bird watchers on top of her modest home. She makes a living selling drinks and meals to bird watchers who visit the area. “Tourism has done a lot to improve our quality of life,” said Londono, whose family initially cleared a small chunk of the forest to grow sugarcane and bananas. My husband used to farm for a living, and I also tried to help him by cleaning nearby homes – but now we don’t need to do any of that.”

Calonje says bird watchers started to visit Farallones National Park around eight years ago, when the government began to push the FARC rebels to more remote areas as part of a large military offensive. A peace deal signed in 2016 between the Colombian government and FARC led to disarmament of around 6,000 rebel troops, and helped secure law and order in this part of the country. Calonje says his company is now launching bird-watching tours in more remote areas that also have rich birdlife, like the Sibundoy Valley in Southwest Colombia and the Guaviare province in Colombia’s eastern plains. He calls them the “peace destinations.”

“The peace deal hasn’t just helped with security,” Calonje said. “It has also changed what is said about Colombia in the media, and that encourages more people to come here.”

But the end of the war with the FARC has also presented challenges for Colombia and its forests. One problem, environmental groups say, is that once FARC relinquished control of some remote areas of the country, the guerrillas were replaced by land speculators, illegal miners and drug traffickers, who have chopped down forests to make way for cattle ranching, gold mining and cocaine production.

According to the Humboldt Institute, Colombia’s largest environmental research institute, 79 percent of Colombia’s overall deforestation last year took place in areas that used to be under FARC influence. “We still need to conduct more research on the specific causes behind this deforestation,” Jose Manuel Ochoa, the Humboldt Institute’s director of biodiversity monitoring, told DW. “But we also need to start looking at what factors reduce deforestation.”

One policy that has worked, Ochoa says, is creating reservations administered by indigenous communities and Afro-Colombian groups who have survived in the forest for hundreds of years. Hernando Garcia, deputy-director of the Humboldt Institute, said helping communities in remote areas to make a living from conservation could also play an important role. “If the forest generates opportunities for development, communities will take care of it,” Garcia told DW. “Ecotourism is one of those opportunities but there are others, like working with natural products that don’t force you to take down the forest.”

Bird watching is only a small aspect of Colombia’s tourism industry. But as ever more tourists visit the country, some rural people are starting to make a living from it.

At the San Antonio Cloud Forest near the city of Cali, Raul Nieto has turned his small farm into a bird-watching center with dozens of feeder stations. Every day, some 30 tourists pay a $5 entrance fee to see the birds tucking in. Nieto says business is improving as word spreads of the great number of hummingbirds – some 40 species – that stop off at his farm.

“The number of people visiting has grown by about 20 percent this year,” Nieto told DW.

Nieto’s farm is surrounded by a cloud forest that was declared a protected area in 2008. Local farmers are not allowed to raise cattle here, or chop down trees. These restrictions make it an ideal bird-watching destination, where another three farms are also opening their doors to tourists.

Over the last decade, the number of bird species recorded in this pocket of cloud forest has risen from 108 to 209, according to the eBird digital platform. As this small corner of Colombia welcomes the outside world after years of violence, conservationists hope the country as a whole can manage to balance economic interests with forest preservation.

**dw.com**

# Kenya: No progress on progressive 30% gender quota

Talking about local resource management in the context of rural African communities means talking about the specific role of women and gender differentiation in resource rights and responsibilities. This affects aspects of control over and access to resources, different types of resource use, divisions of responsibilities, local leadership participation and environmental knowledge.

In order to challenge potential social imbalances, which often disadvantage women, Kenya introduced a new gender quota in its constitution in 2010, mandating that “not more than

two-thirds of the members of the elective or appointive bodies shall be the same gender" (GOK 2010, p. 25). As part of the current Center for International Forestry Research (CIFOR) research project on the 'water towers' of East Africa funded by the German Federal Ministry of Economic Cooperation and Development (BMZ), I took part in examining the effects of this gender quota as well as broader gender differentiation on the performance of community forest associations (CFAs), water resource users' associations (WRUAs) and local resource use.

We found that, due to cultural norms and traditional value systems, the quota has yet to be implemented, and gender inequality in leadership, access to financial benefits and profit sharing persists – and, most women are fine with this.

For the focus of our case study, we selected the two communities of Londiani and Kipkelion adjacent to the Mau Forest Complex – East Africa's largest montane forest – home to the Londiani CFA as well as the Kipchorian WRUA. Women and men in each were asked separately in focus group interviews about the aforementioned aspects of gender differentiation. Digging deeper into the various origins and reasons for the current status quo, further interviews were conducted with select stakeholders of power in forest and water management within the research area. These together revealed current gender myths and theories, expounded below.

Being the bread winners of the household, women are responsible for water, firewood, food and conservation on a daily basis, while men usually use natural resources for commercial purposes only (selling forest products). This is rooted in a longstanding tradition of labor division, which remains unchanged to the present date.

Moreover, there seems to be no gender balance in leadership in either of the two community associations. Women's responsibilities often prevent them from having the time to perform their duties as potential leaders. Some of the interviewed women also emphasized their lack of education as compared to men's, and thus do not picture themselves in leadership positions. Other women do not want to lead, because of their view that a leader has to be physically strong and energetic to protect the resources from potential threats. Furthermore, the community members revealed that many women need their husband's permission to assume leadership.

Similar social imbalances could be found within gendered land tenure. Despite gender equality and access to resources now enshrined in the new Kenyan constitution (i.e. elimination of gender discrimination in law), the expert interviews reveal that, due to cultural aspects, land tenure in Kenya still belongs to men.

This gendered land tenure makes it challenging for women to be properly involved in income-generating activities, since men must provide them with land. Moreover, the interviewed women revealed that profits from harvesting and selling agricultural products – such as with bee-keeping or tree nurseries – belong to the head of households, which is usually a man.

Yet, interviewed women stated they are happy with their chances to participate. They feel included in decision-making processes and that they have solid opportunity to elect their leaders in a fair and democratic procedure. Even if they might disagree with their leaders or face problems within resource management, they can call a meeting and raise their concerns.

"We tried to include women. But these women are happy to let it be that way, because of their level of education and also cultural aspects that play a part," said Boniface Mulwu of Kenya Forest Service (KFS).

Concerning gender differentiation in leadership, responsibilities and land tenure, the interviewed representatives of the regional offices of KFS and the Water Resources Authority (WRA) argue in favor of more equality between women and men. But neither KFS nor WRA have provided any programs for women's empowerment, yet.

**forestsnews.cifor.org**

# Haiti: To reforest Haiti, include Haitians in land management decisions

Haiti is a country of mountains and fields. Roughly 80 percent of the land is covered in rocky ridges, and the vast majority of rural areas are divided into small, privately-owned, cultivated plots. Haiti's natural forests, once abundant, have gradually disappeared due to a complex mix of economic, political and demographic factors dating back 500 years. The country's ecology is also shaped by a history of powerful storms: in October 2016, for example, Hurricane Matthew barreled across Haiti's southern peninsula, devastating communities and the environments they depend on.

But just because Haiti's landscape is now dominated by human activity doesn't mean there is no room – or need – for trees. In fact, trees, shrubs, and agroforestry systems cover some 30 percent of the land and play a vital role in boosting agricultural production, improving livelihoods, and strengthening ecosystems. Increasing the number of trees could multiply these benefits – but only if lands are managed in an inclusive and sustainable way.

"Top-down landscape projects that don't allow communities to participate in meaningful decision making have systematically failed," said Caroline Plante, Senior Livestock Specialist at the World Bank. "This is one of the conclusions we drew from reviewing 80 years of land management efforts in Haiti. Communities all understand the importance of trees, but they become caught in a vicious cycle of increasingly degraded lands. If we want to see widespread reforestation – which is one of the goals of the World Bank's Resilient Productive Landscapes Project – we need engagement with both local communities and experts, taking into account socio-economic factors."

To enable this kind of deep inclusivity, the Program on Forests (PROFOR) funded the development of a Participatory Watershed Management Planning Methodology, which was carried out by the J/P Haitian Relief Organization (J/P HRO) as part of the "Haiti Takes Root" National Reforestation Initiative. The new approach was piloted in two distinct micro-watersheds: one defined by mountain springs and highland agriculture, and the other by coastal wetlands, mangroves, and fisheries.

In phase one, the methodology focused on technical aspects, including using GIS technology to map out the geographical features of the pilot sites. Then, a team of Haitian experts – representing fields as varied as agronomy, economics, sociology, anthropology, hydrology, and ecology – conducted a rapid assessment of all the factors relevant to effective watershed management.

The next step was interviewing community members and organizing workshops with residents to better understand their needs and to benefit from their in-depth knowledge of the landscape. Participants were carefully chosen to represent a variety of views, including the opinions of women. Elected officials were also invited, not simply to witness the proceedings but also to participate in the plenary sessions.

In the last phase of the process, the expert team presented their findings and proposed actions to the communities. Suggestions included shifting away from weeded annual crops that degrade fragile slopes, and incorporating trees into cultivation areas. The group also collectively identified high-value targets for improved water management.

"This tool incorporates participation at every turn," said Dr. Glenn Smucker, lead author of the methodology report. "It has to do with the realities of peoples' lives where they actually live. It identifies watershed management priorities that line up with peoples' economic motivations because something worth investing in, is something worth protecting."

"The main idea is for people to feel as though their lives have improved after a project has been carried out," said Tracy Kroner, Executive Director at Haiti Takes Root. "This may sound obvious, but projects often leave beneficiaries or donors disappointed. By using this tool, projects can help ensure that scarce resources are allocated in a way that is effective, inclusive, and appreciated. That way, even if a project can't address all the challenges that communities face, they understand the reasons why and have been a part of the decision-making that led to the final outcome."

Another important aspect of the methodology is its replicability. While the tool is specifically designed for small-scale settings with workshops of no more than 50 people at a time, its straight-forward style can easily be carried out by others.

"These materials are very succinctly organized into what is almost a checklist," said Kroner. "You can use it as a guideline and it's very easy to adapt, so I hope other projects will pick up on it."

In the meantime, the J/P HRO and World Bank teams are already implementing the methodology as part of the Resilient Productive Landscapes Project. A third workshop has been carried out in the pilot areas to translate the priority activities identified by the community into a concrete investment plan.

With the 2018 Atlantic hurricane season already underway and the risks from climate change increasing all the time, the need to jump-start reforestation efforts in Haiti is more important than ever. As Smucker noted, "People have told us, 'we've had three years of drought, we've had terrible hurricanes. What is the resource that gives us the greatest resilience? It's trees, even the fallen ones, and perennial crops like sorghum and millet.' Restoring the production of income-generating trees and crops is central to survival, and a big part of building people's resilience as they anticipate more storms and droughts."

**profor.info**

# Global: Investing in indigenous communities is most efficient way to protect forests, report finds

The best way to save forests and curb biodiversity loss is to recognize the claims of indigenous peoples to their territories, a new report urges.

Published by the Rights and Resources Initiative (RRI), an international NGO headquartered in Washington, and Victoria Tauli-Corpuz, the UN special rapporteur on indigenous rights, the 28-nation study compares conservation outcomes in lands controlled by indigenous groups against those in government-managed "protection zones."

"This research shows that indigenous peoples and local communities are investing substantially in conserving their forests – up to $1.71 billion in the developing world," the authors write. The figure amounts to between 16 and 23 percent of what the conservation establishment – governments, multilateral organizations, bilateral aid agencies, NGOs, foundations and private entities – spends each year.

Through labor and capital put toward managing, protecting and rehabilitating forests, indigenous communities were found to achieve equal or better conservation outcomes – at a significant discount.

"[Indigenous peoples] are achieving at least equal conservation results with a fraction of the budget of protected areas, making investment in indigenous peoples themselves the most efficient means of protecting forests," according to the study.

The findings add a quantitative dimension to a growing body of literature showing indigenous groups to be forest guardians without peer. Their lands, home to some of the richest forests left, are thought to hold a quarter of the globe's remaining aboveground carbon, and possibly much more.

In the Brazilian Amazon, for example, deforestation in lands inhabited by indigenous peoples was found to be less than 1 percent between 2000 to 2012. Elsewhere in the country it was 7 percent.

From Panama to Peru, Indonesia to India, the rate of deforestation on customary lands is half what it is elsewhere, the report finds. And where the land rights of indigenous communities are formally recognized – currently just 10 percent of the total area they occupy – the difference is even greater, according to RRI.

Despite their proven conservation prowess, the environmental community has, generally speaking, been slow to invest in indigenous-led conservation, whether in terms of land tenure advocacy or co-management forestry schemes.

That is partly a product of good old-fashioned prejudice, according to Tauli-Corpuz, the UN rapporteur.

"Governments and NGOs often consider indigenous peoples to be inferior, as peoples who don't know what they're

doing [to protect forests]," she says. "So even when they see the evidence, they are still not very active in granting recognition or in inviting indigenous communities to be active participants in initiatives."

Today, with forests being cleared at near record rates, such prejudice is a self-defeating perception for those seeking answers to climate change. Deforestation is known to drive 15 percent of all greenhouse gas emissions, and slowing it remains one of the most effective mitigation steps.

"This conservation research underscores the cost of ignoring communities and their immense contributions to conservation," says Alain Frechette, director of strategic analysis and global engagement at RRI. "Investments in forest protection would be more efficient and more just if allocated to the people who have kept the forests standing up until now."

Importantly, the marginalization of indigenous peoples as communities worthy of participation in the work of conservation is not only misguided, it is a violation of their rights, says Tauli-Corpuz: It undermines the Universal Declaration on the Rights of Indigenous Peoples (UNDRIP), the 1999 international compact that was adopted, in part, to ensure the rights of the indigenous to the territories they have inhabited for generations.

Rather than partnering with the people who live in and depend on forests, conservation initiatives by and large continue to drive them from their lands, she says.

Such a logic of conservation, termed "fortress conservation," views the de-peopling of forests as synonymous to their preservation. And in the conservation community, it is the view that has taken the day: 45 million square kilometers (17 million square miles) – a full 15 percent of the Earth's terrain outside Antarctica – have been assigned protected status in recent decades. And while this has helped preserve a great deal of forestland, it has had a disastrous effect on indigenous life across the globe.

A 2017 analysis of the 25 years between 1990 and 2014 found that more than 250,000 people in 15 countries had been evicted from their lands due to fortress conservation. Last year, Global Witness, an NGO based in London, counted 197 murders of land and environmental activists, around 40 percent of whom were indigenous.

"Protected areas were already protected by the communities who lived on and conserved these lands for generations," says Rukka Sombolinggi, secretary general of AMAN, the main advocacy group for indigenous peoples in Indonesia.

"The idea that conservation requires emptying the land of its customary inhabitants has resulted in untold harm to these communities – and the lands they protect."

Over the next two-and-a-half years, the conservation community will seek to assign protected status to another 2 percent of the globe, requiring major investments in conservation. To do so while continuing to sideline indigenous peoples would be a grave error, the authors write.

"In the last 14 years, there has been only limited improvement in the recognition of human rights for the millions of indigenous peoples and local communities living in or near protected areas, despite commitments by governments and conservation organizations and compelling evidence of the positive and cost-effective conservation role of communities," according to the report.

Embracing a rights-based conservation paradigm works for, not against, forests, Tauli-Corpuz adds, and the time is now for a course correction in the bread and butter of the conservation movement: funding.

"We need to ensure [conservation] resources start flowing to indigenous persons themselves…that they are given to communities [directly] so that the ways they do conservation and protection can be empowered and enhanced."

"It's time to take down the wall of fortress conservation."

**news.mongabay.com**

# Indonesia: Can the palm oil sector do more with less to save Indonesia's forests?

More than two years after Indonesia announced a moratorium on expanding oil plantation concessions, efforts to put the ban into effect are being held up by several conflicts of interests, according to Fawziah Selamat, deputy director sustainability, at thinktank Singapore Institute of International Affairs (SIIA).

"There has been a lot of lobbying against the moratorium by palm oil companies," she told Eco-Business. "At the same time, non-government organisations have criticised drafts of the moratorium saying two years [for the ban to take effect] is not long enough to turn around large-scale deforestation."

She said that the moratorium—which was first announced by Indonesia's president Joko Widodo following the 2015 haze crisis—is likely to have been delayed because no party has been satisfied with the drafts.

Southeast Asia's worst haze crisis on record, the 2015 calamity, resulted in an estimated 100,000 premature deaths in the region due to smoke exposure caused by slash-and-burn land clearing to make way for palm oil plantations. That year, the haze released more carbon dioxide into the atmosphere than the emissions of the European Union.

The decree is an effort to curb deforestation and climate change while encouraging plantation owners to increase their productivity and grow more using their existing lands, said Dr Bambang Brodjonegoro, Indonesia's Minister of National Development Planning, at the 5th Singapore Dialogue on Sustainable World Resources. Themed *Climate Action: Seeding Green Growth and Resilience in ASEAN*, the event was hosted by SIIA in May this year.

Once signed, the moratorium will not only freeze new permits in the world's biggest palm oil-producing country, but also mandate a review of existing concessions as well as those currently being processed.

That the act has yet to take effect may indicate that it has moved down the agenda of the current Jokowi administration, especially since the government has been able to stop the onset of major haze episodes since 2015, Selamat told Eco-Business. In February this year, new palm oil permits were issued in Papua.

Selamat also explained that the moratorium had been expected to take effect before Indonesia's regional elections at the end of June. This would have effectively prevented incumbents from issuing palm oil permits, which have been known to be linked to corruption, to either fund their political campaigns or gain favour with influential business people, she said.

With rising consumer demands for sustainable production, the palm oil sector has been under increasing pressure to address the various social and environmental ills it is linked with to clean up its supply chain.

"Consumers have started demanding change in the way plants are grown," said Simon Lord, chief sustainability officer at Sime Darby Plantation, during a panel discussion themed *Doing Well By Doing Good: The Evolution Of Sustainability In The Agri-Business Sector* at the 5th Singapore Dialogue on Sustainable World Resources, adding that only ten years ago there had been no questions over the sustainability of the palm oil sector.

However, despite various sustainability initiatives launched by palm oil traders in recent years, many of the issues at play have persisted because of the multilayered complexity that permeates palm oil production.

About 40 per cent of Indonesia's palm oil is farmed by large numbers of smallholders who produce fresh fruit bunches for independent mills, making supply chains very hard to manage. Smallholder plantations are known for their low productivity and poor crop quality, which makes their plantations prone to deforestation and social conflict in their struggle to fulfil their basic economic needs.

A recurrent theme at the event was the need to support smallholders in tackling these issues through capacity-building and access to finance, which would enable them to abandon outdated agricultural practices and purchase the fertiliser and high-quality seed stocks needed to significantly raise productivity.

"It is easy for [big] companies to make changes quickly, but dealing with smallholders is difficult," said Agus Purnomo, managing director, sustainability and strategic stakeholder engagement at Golden Agri-Resources (GAR), during the panel discussion. He added that GAR – the world's second largest palm oil grower – is backing government-led financing initiatives to support smallholders.

In February, GAR announced that it had finished mapping all of its suppliers to the 44 mills that it owns, and a plan to achieve full traceability for the remaining 427 independent mills by 2020.

Commenting on the likelihood of achieving the 2020 traceability target, Purnomo said that it is impossible to tell whether or not the company will be successful, such is the complexity of the challenge.

Addressing the issue of child labour on oil palm plantations, Lord shared: "I'd like to put my hand on my heart and say every square metre of land we control has got zero deforestation and zero exploitation. I think I'm fairly clear about deforestation, but exploitation is something that can be okay today and not tomorrow."

"It is a constant battle to maintain vigilance but it is hard to make sure every individual manager is behaving correctly," he said.

"I don't believe there is child labour in any of our plantations, but I do believe that children are working in the smallholder sector. Just saying that they should not be working is not the solution. They should be at school," Lord added.

"One issue is understanding the definition of child labour. When children help their parents outside of school time, is that child labour?" challenged Purnomo, stressing that the sector and the Roundtable on Sustainable Palm Oil (RSPO) needed to address this grey area.

Untangling the complexities of the sector would be a big step forward in addressing some its problems, and improving collaboration and sharing knowledge among stakeholders would be one way to do so, said Mark Wakeford, chief executive officer and executive director of Indonesian palm oil firm Indofood Agri Resources (IndoAgri), at the event.

In recent years, IndoAgri has faced criticism over labour rights violations and deforestation on its plantations, resulting in a number of firms cutting ties with the firm including PepsiCo.

Stressing the lack of transparency of the accusations levelled at plantation companies, he said that often NGOs refused to cooperate and share critical information about their findings that would help companies tackle these issues.

"We know we have to improve, but if you make allegations, don't sit behind a report and say nothing. It won't help us move forward," Wakeford said.

**eco-business.com**

# DR Congo explores oil drilling allowed in wildlife parks

The Democratic Republic of Congo government is looking into whether to allow oil exploration in two protected wildlife parks, Virunga and Salonga.

The move is strongly opposed by environmental activists, who say drilling would place wildlife at risk and contribute to global warming. Around one-fifth of Virunga national park could be opened to oil drilling. The parks are home to bush elephants, critically endangered mountain gorillas and the bonobo, an endangered ape.

Both parks are Unesco World Heritage Sites, with Salonga national park covering 36,000 sq km (13,900 sq miles) of the Congo Basin – the world's second-largest rainforest after the Amazon.

The government has defended its right to authorise drilling anywhere in the country, saying in a statement that it is mindful of protecting animals and plants in the two parks.

The cabinet said it had approved commissions charged with looking into whether to declassify parts of the parks, including 1,720 sq km (664 sq miles), or 21.5%, of eastern Congo's Virunga, the continent's oldest wildlife reserve.

The region has suffered rising instability and violence, with at least 12 rangers killed in clashes with armed groups and poachers in the past year.

**bbc.co.uk**

# Liberia: Watchdogs strategize to protect Liberia's remaining forests

The Society for the Conservation of Nature of Liberia (SCNL) and the Royal Society for the Protection of Birds (RSPB) with funding from the British Government have begun a three-day workshop to draft a strategic plan that will help to conserve the 40 percent forest belt the country has in the Guinea tropical rain-forest zone.

The two organizations are currently holding a strategic workshop with cocoa farmers from across the country, with a view to bringing farmers together to devise a strategy that will enhance high yield of cocoa and prevent farmers encroaching on conserved forests.

The project, through which the Green-Liberia Cocoa National Workshop is conducted, is the Partnership for Forest Project P4F, financed by the British Government under the umbrella of the International Development Agency (IDA).

Dr. Shashi Kumaran, Senior International Conservation Officer working with the RSPB, in an exclusive interview during the opening of the workshop, said the intent is to protect Liberia's remaining forest and empower those living there as well as sensitize the residents about the need to protect the forest.

"These farmers," Dr. Kumaran said, "are living on the forest and planting cocoa and to improve their lives in their occupational area, it is better to come out with the technology that will help to improve the yield of their cocoa farms."

As such, Kumaran said farmers will no longer worry about planting randomly in the forest, which consequently damage plant life and the habitats of birds and other wildlife.

"This project is finding the way that the farmers can improve their livelihood, because the idea is that if the farmers can be empowered to have the needed yield from their farm product, there will be less need to cut down the forest. The project is also meant to help farmers see the importance of biodiversity and why it must be protected," Dr. Kumaran said.

She said conservationists are now looking at intensification rather than extension; meaning that technology can help to produce high yield on a hectare than making large farms in a quest for more yield covering a large portion of the forest.

Michael F. Garbo, SCNL Executive Director, also added that the intent of the workshop is to draft a plan that will fall in line with cocoa production scale which will be deforestation free.

SCNL is primarily interested in conserving biodiversity, but Mr. Garbo said they are worried about deforestation taking place around the world and gradually creeping into Liberia.

According to him, if some of the agricultural work done in the forest are managed well and technically maintained to empower farmers, they will be conservation friendly.

He said instead of cutting down the forest in mass, it is good that cocoa farmers cultivate the middle part and plant their cocoa; which, accordingly, will help the cocoa to grow well along with other species of trees that uphold the forest.

SCNL's Science and Conservation Coordinator Jerry C. Garteh said the significance of forest to the survival of human cannot be underestimated.

Garteh is also the Coordinator for the P4P Project operating in Grand Cape Mount, Gbarpolu and Lofa counties. He said that plants in the forest are the same that absorb the bad air (carbon dioxide) released by humans, and in turn process and release it as fresh air (oxygen) for human and animals to take in.

When the forest is depleted to the extent that there are no trees to absorb the carbon dioxide and release oxygen, Mr. Garteh said, it will be hazardous, for mankind and future generations will encounter a serious problem.

British Ambassador David Belgrove said the British Government is committed to supporting forest protection initiative. He said agriculture work, though good and a livelihood venture, should adhere to policy along with forest conservation.

The workshop brought together over 50 farmers from western, central, north-eastern and south-eastern Liberia.

Concern about protecting and conserving forest and wildlife has grown in recent days. In this same week, the Sustainable Development Initiative (SDI) launched a report that indicts the oil palm company Golden Veroleum for damaging Liberia's forest in the South-east, and recommended to government and other stakeholders that GVL's activities be halted to renegotiate its contract.

**liberianobserver.com**

# Pakistan has planted over a billion trees

Pakistan hit its billion tree goal in August 2017 – months ahead of schedule. Now, the hills of the country's northwestern province of Khyber Pakhtunkhwa are alive with newly planted saplings.

The massive reforestation project – named the Billion Tree Tsunami – added 350,000 hectares of trees both by planting and natural regeneration, in an effort to restore the province's depleted forests and fight the effects of climate change.

Decades of felling and natural disasters have drastically reduced Pakistan's forests. Figures for the country's total forest cover range between around 2% and 5% of land area. Nevertheless, Pakistan has one of the lowest levels of forest cover in the region and well below the 12% recommended by the UN.

It is also among the six countries that will be most affected by global warming.

Khyber Pakhtunkhwa had lost large areas of forest to felling, which increased the likelihood of flooding and landslides. In 2016 flash floods hit the province, killing dozens of people.

**Green success story**

Cricket-star turned politician Imran Khan, whose Pakistan Tehreek-e-Insaf party governs in Khyber Pakhtunkhwa, spearheaded the Billion Tree Tsunami, which started in 2014 and cost $169 million.

As well as benefiting the environment, the project has established a network of private tree nurseries, which have boosted

local incomes and generated green jobs, including for unemployed young people and women in the province.

It also meant the Khyber Pakhtunkhwa government surpassed its 348,400 hectare commitment to the Bonn Challenge. This aims to restore 150 million hectares of degraded and deforested land worldwide by 2020, and 350 million hectares by 2030. It was the first Bonn Challenge pledge to reach its restoration goal.

Inger Andersen, head of the International Union for Conservation of Nature (IUCN), the NGO in charge of administering the Bonn Challenge, described it as "a true conservation success story".

However, the Billion Tree Tsunami has attracted criticism as well as praise within Pakistan, and an official inquiry into allegations of corruption has been launched.

Experts at World Wildlife Fund-Pakistan, which monitored and conducted an independent audit of the reforestation drive, say the project has been an environmental, economic and social success, VOA news reported.

Its popularity has prompted Pakistan's federal government to launch its own Green Pakistan programme, which aims to plant 100 million trees in five years across the country.

**weforum.org**

# Malaysia: Sarawak will not sacrifice environment in pursuit of development

The Sarawak government recognises the importance of protecting, preserving and conserving the environment even as it tries to industrialise the state's economy.

Chief Minister Datuk Patinggi Abang Johari Tun Openg said the government has formulated various policies and legislations to sustainably manage and conserve Sarawak's forests and wildlife to ensure that economic developments in the state conform to the globally accepted principle of sustainable development.

"Sustainable development is a delicate balance between the need for economic growth, social progress, political stability and preservation of the environment.

"For this reason, the state government has formulated the Land Use Policy to manage our land use in order to achieve development that is sustainable," he said at the opening ceremony of the 55th Annual Conference of the Association for Tropical Biology and Conservation (ATBC) held here yesterday.

With Sarawak's land mass of 12.4 million hectares of which 64 per cent is still under forest cover, Abang Johari stressed the state has a very clear land use policy which takes into consideration all aspects of economic development, social wellbeing and environmental balance and integrity.

"This policy includes three main sectors namely forestry, agriculture and other land uses," he said while noting that for forestry, the government has targeted six million hectares of land as permanent forest estates and one million hectares as totally protected areas.

He also gave his assurance that the Sarawak government manages its forest based on the principles of Sustainable Forest Management (SFM).

"We invited the FAO (Food and Agriculture Organisation of the United Nations) in 1968 and the International Tropical Timber Organisation (ITTO) in 1989 to undertake a study of sustainable forest management in Sarawak and recommend to us how to manage our forest effectively.

"The findings covered a wide spectrum of subjects on sustainable timber yield, sustainable catchment management, biological diversity and economic sustainability."

He added that all of these recommendations have been complied with and implemented by the relevant state agencies and industries.

Apart from that, he also pointed out that the state has always welcomed international collaboration to carry out research and conservation works in Sarawak's forests.

"We have strategic partnership with various countries such as Japan, Netherlands, Germany, Denmark, USA, Australia, New Zealand, India, China, Asean countries, the Middle East and others.

"We also have scientific collaborations with international bodies such as ITTO, FAO, United Nations Development Programme (UNDP), Global Environment Facility (GEF), Japan International Cooperation Agency (Jica) and so on to promote greater cooperation and sharing of scientific information," he remarked.

Later at a press conference, Abang Johari expressed his appreciation to ATBC for organising their first conference in the country which will no doubt allow for professionals such as biologists and conservationists to discuss on issues pertaining to conservation and environment.

"This is an issue that is being discussed worldwide and during the conference, I'm sure the professionals will recommend certain approaches for us to conserve whatever assets we have for the future generation."

Themed 'Linking Natural History with the Conservation of Tomorrow's Tropical Ecosystems', the ATBC conference will see the presentation of over 550 oral presentations and 120 posters as well as a number of keynote addresses and panel discussions about tropical issues of high local, regional and global relevance.

Nearly 850 tropical biologists and conservationists from over 60 countries, including nearly 200 Malaysian professionals and students, will be attending the five-day international conference.

Also present were ATBC executive director Prof Robin Chazdon, ATBC president Prof Yadvinder Malhi, ATBC conference 2018 chairman Dr Ahimsa Campos-Arceiz, co-chairman Dr Mohd Azlan Jayasilan and Ministry of Urban Development and Natural Resources permanent secretary Dr Wan Lizosman Wan Omar.

**theborneopost.com**

# Mexico: Payments for ecosystem services can boost social capital in addition to forest management

New research finds that a national payments for ecosystem services (PES) program in Mexico not only benefits the environment but supports social relationships in local communities, as well.

Mexico's federal PES program is administered by the country's National Forestry Commission, known as CONAFOR, which signs five-year contracts with selected landowners who agree to maintain existing forest and other naturally occurring vegetation on their land. Participants receive annual payments of between $8 and $32 per acre they have enrolled in the program. Their conservation efforts are monitored by field visits and satellite imagery.

Two US-based economists, Oregon State University's Jennifer Alix-Garcia and Amherst College's Katharine Sims, led a team that looked at how participation in PES programs impacted social relationships in Mexico's agrarian communities – local governance structures that make joint decisions about land management and are formally recognized by the Mexican government. Approximately half of forested land in Mexico is governed under these communal structures.

At its core, PES is a relatively simple concept: Paying landowners directly to conserve their land, thus ensuring the provision of certain "ecosystem services," like harboring biodiversity, sequestering carbon, and providing clean water. PES initiatives have been launched in countries around the world, often under the auspices of the UN's Reducing Emissions from Deforestation and Forest Degradation (REDD+) program. But PES has its detractors, too, many of whom fear that paying people for conservation efforts will compromise whatever moral or ethical impulse they might have had to protect the environment as a worthwhile goal in and of itself.

"Conservation of natural resources often relies on voluntary contributions of time and effort, and payments for environmental services policies boost these efforts by providing funding for maintenance of forests and other natural vegetation," Sims said in a statement. "While these financial incentives help forest management activities compete with other land uses, many conservationists worry that external payments will undermine moral or intrinsic motivation to protect nature."

For the study, the results of which were detailed last month in the journal PNAS, Alix-Garcia, Sims, and team surveyed more than 800 leaders of agrarian communities in Mexico and 8,000 individual households to determine the effects of the federal PES program on community social relationships. In order to ensure that they had isolated the impacts of PES, the team compared people who had been accepted into the program to applicants who had just barely missed qualifying for enrollment.

"Rejected applicants just below the cutoffs are a good control group – they are similar on observable characteristics such as baseline poverty or forest cover, and are likely to be very similar with respect to unobservable confounding factors such as desire to conserve, land quality, or skill set," Sims told Mongabay.

Sims and co-authors found that enrollment in the PES program increased land management activities like patrolling for illegal loggers and poachers, building fire breaks, conserving soil, and controlling pests by approximately 50 percent in participating communities. "We were very encouraged to see that the program induced substantial increases in activities promoting ecosystem services – in line with the primary program goal," Sims said.

Alix-Garcia noted that "It is especially noteworthy that the program did not crowd out unpaid contributions to land management or other voluntary community work."

This is not the first time research has shown that PES can deliver on environmental conservation goals. In fact, a 2015 study by Alix-Garcia and Sims was one of the first inquiries to determine that PES could slow deforestation, particularly when the programs were deployed in communities facing strong pressure to convert their lands for agriculture or ranching.

As detailed in PNAS, the researchers found that participation in Mexico's PES program improved "community social capital" – defined as "the institutions, relationships, attitudes, and values that govern human interactions" – by 8 to 9 percent. That is, members of communities enrolled in the program had higher levels of participation in decision-making assemblies and had greater ability to resolve conflicts, while trust between members and community-building efforts were also boosted.

Just as importantly, Sims said, "despite strong concerns by the conservation community that external incentives might undermine social relationships, we did not find any evidence that PES crowded-out contributions to other voluntary community work or governance, or changed individual attitudes." She added: "Our findings are noteworthy because they show that external incentives for conservation can support, not undermine, social institutions and relationships."

The authors say their study is the first to analyze the impacts on social capital of a national-scale PES program. When Mongabay explored the evidence for the effectiveness of PES programs earlier this year as part of our Conservation Effectiveness series, we found that the existing literature looking at the social impacts of PES tended to focus on equality and marginalization, and few of the studies we examined were rigorous enough in their methodology to be able to demonstrate conclusively that the observed social changes were due specifically to the adoption of PES. This study would seem to help fill that knowledge gap.

Alix-Garcia noted that the team's findings might be relevant in contexts outside of Mexico, as well: "Conservation incentives are expected to be a big part of international REDD+ agreements, which will encourage increased land management efforts in low-income countries. Because social institutions are a key driver of economic development, it is important to understand how incentivized conservation might affect them."

**news.mongabay.com**

# Europe: Cycling race footage highlights climate change effects on trees

Ecologists have reviewed archive footage of the Tour of Flanders cycling race going back three decades to reveal the effects of climate change on trees.

The Tour takes place on a 267-kilometre route along Belgian roads in early April every year. While he was watching historical clips of the race online, it occurred to Pieter De Frenne from Ghent University, Belgium, that the footage might provide a valuable record of how the timing of leafing and flowering has changed.

"I noticed that that these past editions are often in very cold weather, and the trees in the landscape never have leaves," he says.

So in collaboration with the Belgian broadcaster VRT, De Frenne and his team spent several weeks watching archive footage and gathering data on the trees. "It was great fun," he says.

The data confirmed his suspicions. Before 1990, hardly any trees had grown leaves by the time the Tour took place. After that, more and more trees in the TV footage were already in full leaf, including magnolia, hawthorn, hornbeam and birch trees.

"It was very remarkable. The differences we observed were more than we expected," says De Frenne.

This shift coincided with a rise in the average temperatures in the region, by about 1.5°C since 1980.

Earlier leafing allows trees to grow faster, but this has knock-on effects for other species, says De Frenne. For example, flowers growing beneath the trees may not get enough sunlight to bloom, and this means less nectar is available for insects.

**newscientist.com**

# NZ Charity has Record Year

The NZIF Foundation announces education and research awards totalling $41,000. "For this year's allocation of funds, we were excited to have more awards, receive more applications and announce a record level for distributions", said Dr Andrew McEwen, the Foundation's chair.

"In 2012, the first year of the Foundation's operation, we had four awards and $6,500 to distribute. For 2018 we had ten award categories. What is especially pleasing is the applicants come from a wide range of institutions and forestry interests, with research projects in plantation forest management, harvesting and trade, social issues, indigenous forests and urban forests."

The awards were announced at the New Zealand Institute of Forestry Conference dinner in Nelson recently.

Trevor Best, a PhD student at the University of Canterbury School of Forestry received a $10,000 Future Forest Scholarship for his research on the way machine operators in the logging industry deal with stress within their work-life with an emphasis on the implications for their health and safety.

Leo Mercer, a PhD student in environmental studies at Victoria University of Wellington received a $10,000 Future Forest Scholarship for his research examining the role native forest restoration, in association with carbon farming, can play in the development of Māori land on the East Coast of the North Island.

Mat Curry, a Forestry Science student at Canterbury University received the $5,000 NZ Redwood Company Scholarship.

Logan Robertson, a Forestry Science student at Canterbury University received the $5,000 Invercargill City Forests award, which is available to assist residents of Invercargill City in studies, research or travel in an area benefiting forestry.

The Jon Dey Memorial Award assists research projects in the areas of work study or new technology aimed at improving forest engineering and harvest productivity. $3,500 was awarded to Cameron Leslie, for his Master's project on the productivity of winch-assisted machines.

The Otago/Southland Award of $3,000 went to Rhys Black a University of Canterbury student for his analysis of the availability of bulk vessels for log exports, using data from South Port and Port Otago.

The Frank Hutchinson Postgraduate Scholarship of $1,000 went to Yannina Whiteley at Canterbury, the University Undergraduate Scholarship of $1,000 was awarded to Phoebe Milne, a first-year forestry student at Canterbury and the Mary Sutherland Scholarship of $1,000. was awarded to Georgia Paulson, who is in her second year of the Level 6 Diploma in Forest Management at Toi-Ohomai, in Rotorua.

Three forestry students from Canterbury University received prizes in the student poster competition at the NZIF Conference. Ben Reriti received first prize of $800, Millan Visser second prize of $500 and Lauchie Weston third prize of $200.

"We were delighted with the number and quality of applications", said Dr McEwen. "We congratulate the recipients of the awards and thank all applicants and encourage them to persist with their research and education and to make a career associated with New Zealand's forests, which have a vital role to play in this country's environment, economy and society."

**nzif.org.nz**